

## **Remarks**

Applicants appreciate that the Examiner entered the amendment filed on October 21, 2008. Applicants further appreciate that the Examiner withdrew the rejections under 35 U.S.C. §112, second paragraph, as presented in the July 23, 2008 Office Action.

Applicants have amended the claims to expedite prosecution of a preferred embodiment. Specifically, claims 1, 9, 12, and 17 have been amended to specify that the detection method relies on primer extension and MALDI TOF detection. Support for the amendment can be found throughout the specification, and for example, in paragraph [077].

Accordingly, no new matter has been introduced by the amendments and their entry is respectfully requested.

Applicants now turn to the specific remaining rejection and respectfully ask the Examiner to reconsider his position in view of the following.

In the July 23, 2008 Office Action, the Examiner rejected claims 1, 2, 4-6, 8, and 21, 22, 24 under 35 U.S.C. 103(a) as allegedly being unpatentable over Ruano et al (1990) (“Ruano”) in view of Furlong et al (1993) (“Furlong”). In the Advisory Action, in response to the Applicants’ arguments in the Amendment dated October 21, 2008, the Examiner argued that Applicants’ arguments regarding significantly increased efficiency of the present method is a result of not only short fragment amplification but also a particular detection method.

While Applicants respectfully disagree, Applicants have amended the claims to an embodiment wherein detection is performed using primer extension and subsequent MALDI TOF detection.

The Examiner also alleged that “Furlong et al (1993) provides for high efficiency of allele analysis (Table 3 on p. 1197) indicating that even with amplification of amplicons between 149 and 266 bp in length in a multiplex reaction, the efficiencies disclosed by the instant specification are not, in fact, unexpected.”

Applicants respectfully disagree. Applicants submit that on page 1194, second column, Furlong specifically states that the “relatively high percentage of wells apparently containing 0 sperm per well **probably reflects failure of PCR** in these wells, as visual inspection of wells following flow-sorting estimated that >98% contained single sperm.” (Emphasis added.) On

page 1198, first column, Furlong also states that only in 47% of the wells all four loci were amplified. Thus, Applicants respectfully submit that these numbers indicate a much lower PCR efficiency than what is achieved using the methods of the current claims. Accordingly, it appears that the Examiner's statement regarding 40-45% haplotyping efficiency misreads what is stated in the specification. Rather, as explained in par. [0076], the specification describes that PCR efficiency of about 90-95% with single DNA molecules was achieved by the Applicants. This is re-stated at the end of par. [0077] as 90%.

Applicants respectfully submit that the present method of only using short, about 100bp fragments provides a surprising advantage that was not taught or suggested by the combination of Ruano and Furlong.

In view of the above, Applicants respectfully request the Examiner to reconsider his position with respect to the teachings of Furlong and Ruano, and withdraw the alleged obviousness rejection under 35 U.S.C. 103(a) over Ruano in view of Furlong.

In view of the claim amendments and the arguments set forth *supra*, Applicants respectfully submit that all claims are in condition for allowance. Early and favorable action is respectfully requested.

In the event that any additional fees are required, the PTO is authorized to charge our deposit account No. 50-0850.

Date: December 17, 2008

Customer No.: 50607

Respectfully submitted,

/Leena H. Karttunen/

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